

IN THE DRAWINGS:

Please enter the attached corrected drawings Figs. 18-19, in which a legend of "Prior Art" is being added, to replace Figs. 18-19 as originally filed. A Letter to Draftsperson is also submitted herewith.

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated November 1, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1-24 stand for consideration in this application. Claims 25-28 are being cancelled without prejudice or disclaimer. Claims 1-2, 9, 13 and 15-20 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim Applicants' invention.

The claims, the specification, and the drawings are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Formality Objections & Rejections

The drawings, the specification and the claims were objected to for minor informalities. Specifically, Figures 18-19 were objected to for lacking the legend "Prior Art", the Abstract of the Disclosure included grammatical errors, and claims 9, 13, 25 and 27 contained various formal errors. As indicated, the drawings, the specification and the claims are being amended as required by the Examiner. Accordingly, the withdrawal of the outstanding informality objections is in order, and is therefore respectfully solicited.

Claims 5, 8, 10, 16, 19 and 21 were rejected under 35 U.S.C. § 112, first paragraph, as being non-enabled by the specification. Applicants respectfully content that claims 5, 8, 10, 16, 19 and 21 were included in the originally filed application and supported by the JP priority documents, such that they are allowed to be incorporated into the specification.

Accordingly, the withdrawal of the outstanding informality rejection is in order, and is therefore respectfully solicited.

Prior Art Rejections

Under 35 U.S.C. §102(e), claims 25-27 were rejected as being anticipated by US Publication No. 2003/0067424 to Akimoto et al. (hereinafter "Akimoto '424"), and claim 28 was rejected as being anticipated by US Publication No. 2003/0214493 to Akimoto et al. (hereinafter "Akimoto '493"). Under 35 U.S.C. §103(a), claims 1-4, 6-7, 9, 12-15, 17-18, 20 and 23-24 were rejected as being unpatentable over Akimoto '424 in view of US Patent No. 5,302,966 to Stewart (hereinafter "Stewart"), claims 5, 8, 16 and 19 were rejected over Akimoto '424 in view of Stewart and US Patent No. 5,250,931 to Misawa et al. (hereinafter "Misawa"), claims 10 and 21 were rejected under over Akimoto '424 in view of Stewart and US Patent No. 6,670,936 to Akimoto et al. (hereinafter "Akimoto '936"), and claims 11 and 22 were rejected over Akimoto '424 in view of Stewart and US Patent No. 6,812,912 to Miyajima et al. (hereinafter "Miyajima"). These rejections have been carefully considered, but are most respectfully traversed.

Since claims 25-28 are being cancelled without prejudice or disclaimer, the §102 rejections thus become moot.

The image display device of the present invention (for example, the embodiment depicted in Figs. 1-4), as now recited in claim 1, comprises: a display part 20 configured by a plurality of pixels 10 each having an electro-luminescent element 1 driven to illuminate according to a display signal voltage V_s ; a signal line 8 used to write said display signal voltage in said pixel 10; a pixel selector 15 for selecting a pixel from said plurality of pixels so as to write said display signal voltage V_s therein through said signal line 8; a display signal voltage generator 16 for generating said display signal voltage V_s ; an illuminating state controller for controlling a selection of illuminating state or non-illuminating state for each of said plurality of pixels at a time; and a constant voltage supply for supplying a constant voltage V_{il} to each of said plurality of pixels through said signal line 8 when said illuminating state is selected for said selected pixel. One end of said electro-luminescent element 1 provided in each said pixel 10 is connected to a common power supply while the other end of said electro-luminescent element 1 is connected to a first source/drain electrode of an electro-luminescent element driving transistor 2 through a first switch 7, a second source/drain electrode of said electro-luminescent element driving transistor 2 is connected to a power supply line 9, and the gate of said electro-luminescent element driving transistor 2 is connected to the first source/drain electrode of said electro-luminescent element driving transistor 2 through a second switch 6 (claim 2; Fig. 2).

As recited in claim 13, one end of the signal line 8 is connected to the display signal voltage generator 16 through a third switch 17 (Fig. 7).

Applicants contend that none of the cited prior art references teaches or suggests “supplying a constant voltage to each of said plurality of pixels through said signal line 8 when said illuminating state is selected for said selected pixel,” and that “one end of said electro-luminescent element 1 provided in said each pixel 10 is connected to a common power supply while the other end of said electro-luminescent element 1 is connected to a first source/drain electrode of an electro-luminescent element driving transistor 2 through a first switch 7, a second source/drain electrode of said electro-luminescent element driving transistor 2 is connected to a power supply line 9, and the gate of said electro-luminescent element driving transistor 2 is connected to the first source/drain electrode of said electro-luminescent element driving transistor 2 through a second switch 6” according to the invention.

As admitted by the Examiner (p. 8, last paragraph of the outstanding Office Action), Akimoto does not expressly disclose supplying a constant voltage to each pixel during the illuminating state. Stewart was relied upon by the Examiner to provide such teachings. However, it is impossible for Stewart to control on and off of the illuminating period as does the present invention, due to the connection of Stewart’s switch/transistor 44 to other components in the electro-luminescent element pixel circuit 42 Fig. 2(a).

Although one end of Stewart’s switch/transistor 44 (Fig. 2(a)) is connected to the gate of the alleged electro-luminescent element driving transistor 50, another end of Stewart’s switch/transistor 44 is connected to the signal line 48, rather than a connecting point between the driving transistor 50 and the electro-luminescent element as does the second switch/transistor 6 of the present invention.

Stewart controls the moving point of the driving transistor 50 by turning on the switch/transistor 44 (col. 3, lines 17-24,40-57; Fig. 2(a)). However, such a write moving has a big problem. A capacitance 66 or a capacitance 51 is preferably present for digital gray scale operation, while a capacitance 51 is preferably present for analog gray scale operation (col. 3, lines 8-12). Stewart’s Fig. 2(a) shows that the data stored in both ends of the capacitance 66 is always 0V by turning on the switch/transistor 44. Therefore, the gate voltage of the driving transistor 50 is the same voltage as the data line 48, and the relation of both sides are always maintained by being present of the capacitance 66. In other words, the gate voltage of the driving transistor 50 is the same voltage as the data line 48, whether the data writing to the pixel is a lot or not, such that it is impossible to control on and off of the illuminating period.

The reason for such a problem is that the other end of the switch/transistor 44 addressing of the writing period (one end of the switch 44 being connected to the gate of the driving transistor 50) is connected to the data line 48. The present invention solves such a problem by connecting the end of transistor 6 addressing of writing period to the connecting point between a driving transistor 2 and an illuminating element 1 (Fig. 2). As such, when the transistor 6 addressing of writing period is turned on, the data memorized in both sides of the capacitance 4 is not always 0V so as to realize effective moving.

The present invention supplies a constant voltage to each of said plurality of pixels when the illuminating state is selected for said selected pixel, as the gate voltage of the driving transistor 50 is the same voltage as the data line 48 whether the data writing to the pixel is a lot or not. The present solves the problem in Stewart which can't control on and off of the illuminating period.

Although the invention applies the general "constant voltage supplied to each of said plurality of pixels through said signal line" as disclosed in Stewart, the invention applies the constant voltage on the circuit structure recited in the "wherein" clauses of claim 1 to achieve unexpected results or properties, for example, to control on and off of the illuminating period as depicted in Figs. 3-4 of the specification. The presence of these unexpected properties is evidence of nonobviousness. MPEP§716.02(a).

"Presence of a property not possessed by the prior art is evidence of nonobviousness. In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (rejection of claims to compound structurally similar to the prior art compound was reversed because claimed compound unexpectedly possessed anti-inflammatory properties not possessed by the prior art compound); Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961) (Appellant showed that the claimed range of ethylene diamine was effective for the purpose of producing " 'regenerated cellulose consisting substantially entirely of skin' " whereas the prior art warned "this compound has 'practically no effect.' ").

Applicants will point out that "[t]he submission of evidence that a new product possesses unexpected properties does not necessarily require a conclusion that the claimed invention is nonobvious. In re Payne, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). See the discussion of latent properties and additional advantages in MPEP § 2145," the unexpected properties were unknown and non-inherent functions in view of Stewart, since Stewart does not inherently achieve the same results. In other words, these advantages would not flow

naturally from following the teachings of Stewart, since Stewart fails to suggest the circuit structure recited in the wherein sentences of claim 1.

Applicants contend that a person of ordinary skill will not be motivated to combine the teachings in Akimoto and Stewart in the manner suggested by the Examiner since the resulting change in the principle of operation in Akimoto will contradict its intended purpose. Specifically, Akimoto teaches variations of triangular waveforms ([0048]), rather than any linear/ constant waveform as shown in the prior art Fig. 24, which Akimoto tried to teach away from or improve over. It is well established that a rejection based on cited references having contradictory principles or principles that teach away from the invention is improper.

To "attend different visual characteristics" in view of [0048] of Akimoto (*"In regard to the waveform of the triangular pulse, various changes are possible within the gist of the invention. This embodiment takes on the triangular waveform of bilateral symmetry such that the center of the emitting period does not depend upon the gradation of light emission. However, it is possible to use an asymmetrical triangular waveform, a non-linear triangular waveform equivalent to the gamma characteristic modulation, or plural triangular waveforms, etc. to attain different visual characteristics."*), Applicants contend that one skilled in the art would only be motivated to modify a standard triangular into an asymmetrical triangular, a non-linear triangular or plural triangular, rather than changing it into any linear/constant form as suggested by the Examiner (p. 9, 3rd and 4th paragraphs of the outstanding Office Action). Applicants respectfully contend that the alleged motivation to combine is improper, since it does not suggest any wave form other than triangular.

Applicants contend that neither Akimoto, Stewart, nor their combination teaches or discloses each and every feature of the present invention as disclosed in independent claim 1.

In addition, Applicants submit that Akimoto is disqualified from being cited as a prior art reference under 35 U.S.C. §103(c)(1), since Akimoto and the application have the same assignee Hitachi, Ltd. currently, as well as "at the time the invention was made." See MPEP §706.02(l)(1) Rejections Under 35 U.S.C. 103(a) Using Prior Art Under 35 U.S.C. 102(e), (f), or (g); Prior Art Disqualification Under 35 U.S.C. 103(c).

35 U.S.C. 103 Conditions for patentability; non-obvious subject matter.

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(c)

(1) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at

the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The assignment of the current application was recorded in the U.S. Patent and Trademark Office on March 7, 2006 on Reel 017654, Frames 0171-0173, while Akimoto's assignment was recorded in the U.S. Patent and Trademark Office on August 6, 2002, on Reel 013278, Frames 0148.

As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

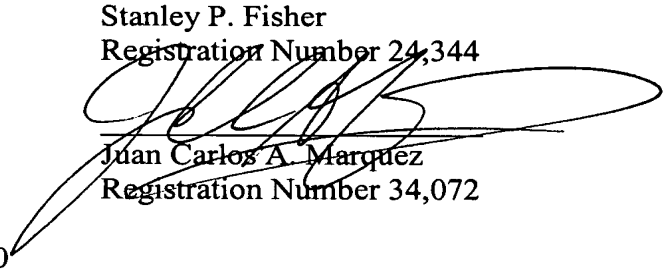
Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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